- (a) On the open deck in or adjacent to the cargo area; or
- (b) In the accommodation house, near to a door that opens onto the main deck

§154.1435 Medical first aid guide.

Each vessel must have a copy of the *IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods,* printed by IMO, London, U.K.

§154.1440 Antidotes.

Each vessel must have the antidotes prescribed in the *IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods,* printed by IMO, London, U.K. for the cargoes being carried.

Subpart D—Special Design and Operating Requirements

§154.1700 Purpose.

This subpart prescribes design and operating requirements that are unique for certain cargoes regulated by this part.

$\S\,154.1702$ Materials of construction.

When Table 4 references one of the following paragraphs in this section, the materials in the referenced paragraph must not be in components that contact the cargo liquid or vapor:

- (a) Aluminum and aluminum bearing alloys.
 - (b) Copper and copper bearing alloys.
 - (c) Zinc or galvanized steel.
 - (d) Magnesium.
 - (e) Mercury.
- (f) Acetylide forming materials, such as copper, silver, and mercury.

§ 154.1705 Independent tank type C.

The following cargoes must be carried in an independent tank type C that meets §154.701(a):

- (a) Ethylene oxide.
- (b) Methyl bromide.
- (c) Sulfur dioxide.

§ 154.1710 Exclusion of air from cargo tank vapor spaces.

When a vessel is carrying acetaldehyde, butadiene, ethylene oxide, or vinyl chloride, the master shall ensure that air is:

- (a) Purged from the cargo tanks and associated piping before the cargo is loaded; and
- (b) Excluded after the cargo is loaded by maintaining a positive pressure of at least 13.8 kPa gauge (2 psig) by:
 - (1) Introducing a gas that:
 - (i) Is not reactive;
 - (ii) Is not flammable: and
- (iii) Does not contain more than 0.2% oxygen by volume; or
- (2) Controlling the cargo temperature.

§154.1715 Moisture control.

When a vessel is carrying sulfur dioxide, the master shall ensure that:

- (a) A cargo tank is dry before it is loaded with sulfur dioxide; and
- (b) Air or inert gas admitted into a cargo tank carrying sulfur dioxide during discharging or tank breathing has a moisture content equal to or less than the moisture content of air with a dewpoint of $-45\ ^{\circ}\text{C}\ (-49\ ^{\circ}\text{F})$ at atmospheric pressure.

§154.1720 Indirect refrigeration.

A refrigeration system that is used to cool acetaldehyde, ethylene oxide, or methyl bromide, must be an indirect refrigeration system that does not use vapor compression.

§ 154.1725 Ethylene oxide.

- (a) A vessel carrying ethylene oxide must:
- (1) Have cargo piping, vent piping, and refrigeration equipment that have no connections to other systems;
- (2) Have valves, flanges, fittings, and accessory equipment made of steel, stainless steel, except types 416 and 442, or other material specially approved by the Commandant (G-MSO);
- (3) Have valve disk faces, and other wearing parts of valves made of stainless steel containing not less than 11% chromium:
- (4) Have gaskets constructed of spirally wound stainless steel with teflon or other material specially approved by the Commandant (G-MSO):
- (5) Not have asbestos, rubber, or cast iron components in the cargo containment system and piping;
- (6) Not have threaded joints in cargo piping;